Treating Open and Closed Chest Wounds

OBJECTIVES:

-What is an Open Chest wound? How do we treat it?

-What is a Clo nd? How do we treat it?

Treating Open and Closed Chest Wounds (Cont'd)

- **Signs and Symptoms of a Sucking Chest Wound**

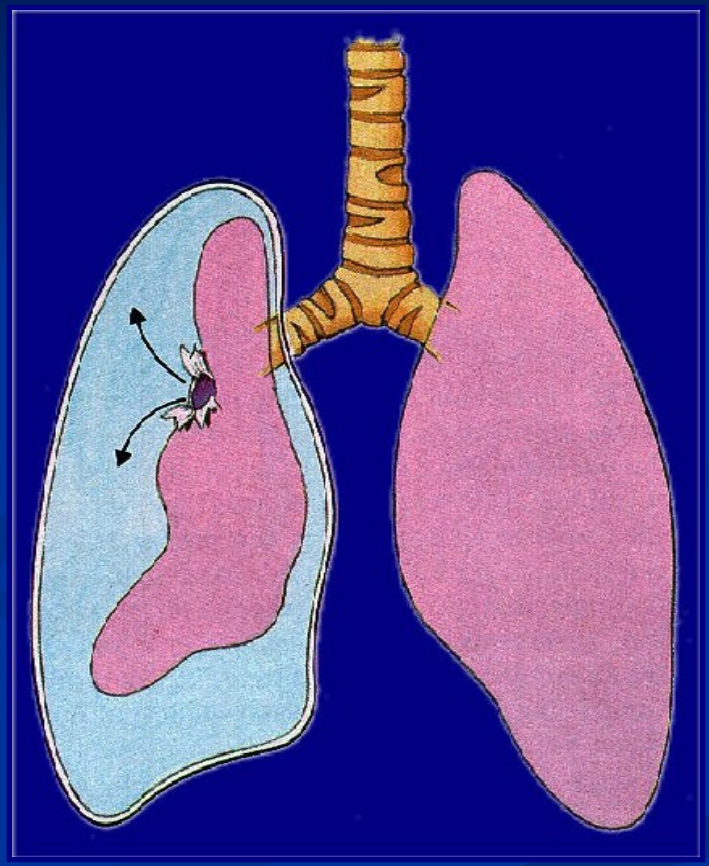
- Sucking or Hissing sounds coming from the Chest wound
- Casualty coughing up blood
- Frothy blood coming from the wound site
- Shortness of breath; Difficulty breathing
- Chest not rising normally when casualty inhales
- Pain in shoulder or anywhere that increases with breathing
- Bluish tint of lips, inside mouth, fingertips or nail beds
- Rapid and weak heartbeat

Treating Open and Closed Chest Wounds (Cont'd)

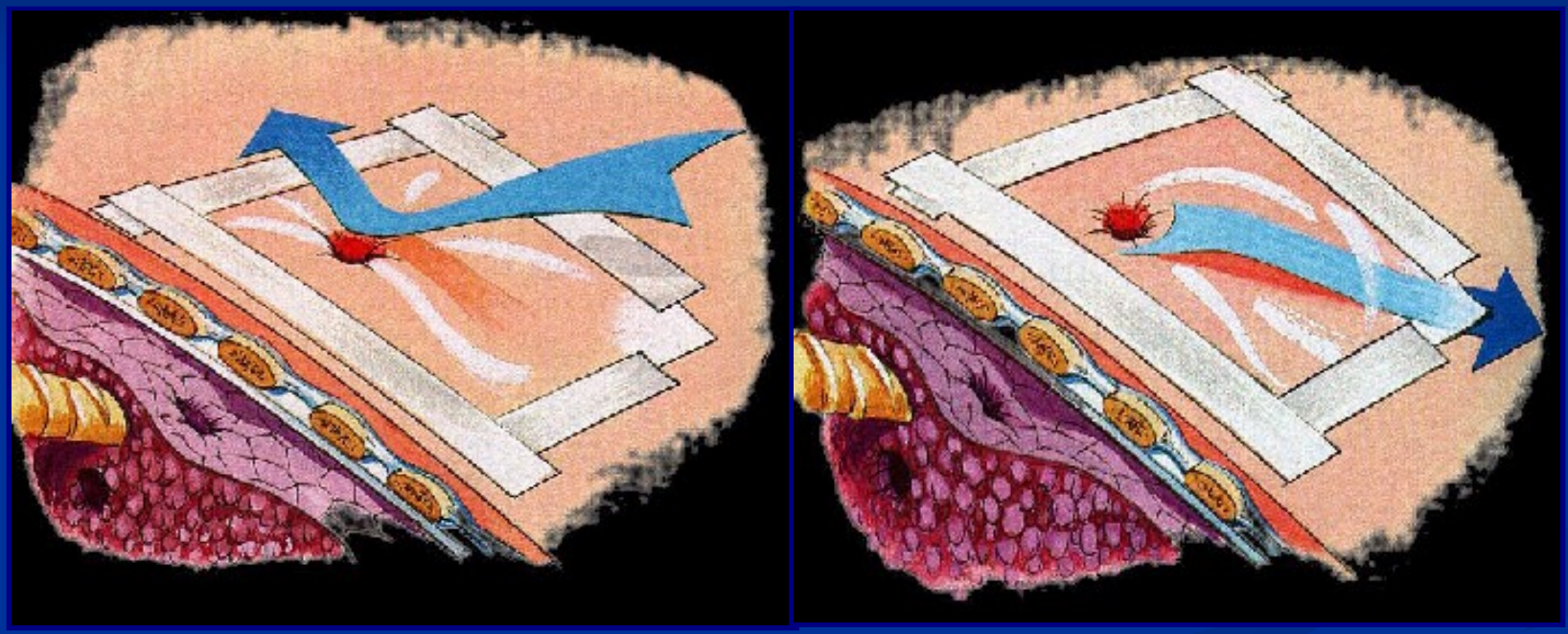
Air in between Lung "bag" and rib cage.

Decompression allows the escape of this air

Will not re-inflate lung, but will relieve tension and pressure in chest area.



Treating Open and Closed Chest Wounds (Cont'd)
Open Pneumothorax



Treating Open and Closed Chest Wounds (Cont'd)

- **Management:**
  - **Ensure an open airway**
  - **Seal the wound. Both entrance and exit with an occlusive dressing, petrolatum gauze or Asherman Chest Seal® (LOOK FOR THE EXIT HOLE)**
  - **Real world: Place the casualty in their position of comfort. Test=injured side**
  - **Monitor respirations after an occlusive dressing is applied. Consider doing a NCD if respirations become labored.**

Open Pneumothorax

- Petroleum Gauze can also be used to seal a sucking chest wound.

"Asherman Chest Seal®"

Treating Open and Closed Chest Wounds (Cont'd)

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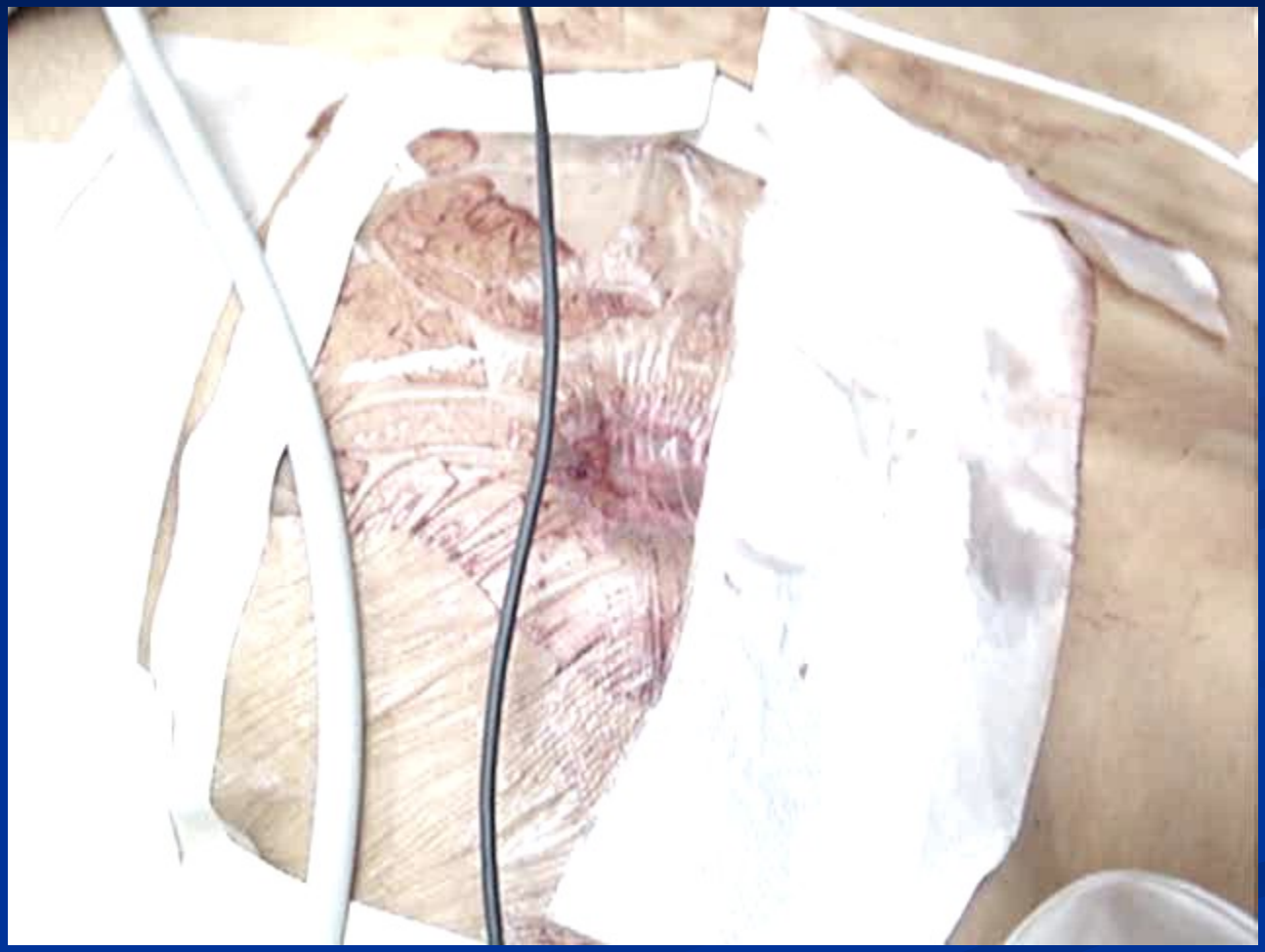


Treating Open and Closed Chest Wounds (Cont'd)

- For multiple injuries to the chest (e.g. casualty exposed to shrapnel from a mortar or an IED), You can use ***Tegaderm*** (**IV OP Sites**) to cover multiple areas.

- The Goal is to seal the Chest area immediately

Treating Open and Closed Chest Wounds (Cont'd)

- Demonstration of sealing an Open Chest Wound, and discussion of various materials that can be used in this process.
- Demonstrate how to create a "Flutter Valve" and the need for one.
- Demonstrate how to seal an Open Chest wound with an impaled Object

Treating Open and Closed Chest Wounds (Cont'd)

- Closed Chest Wounds / Tension Pneumothorax
  - Signs and Symptoms

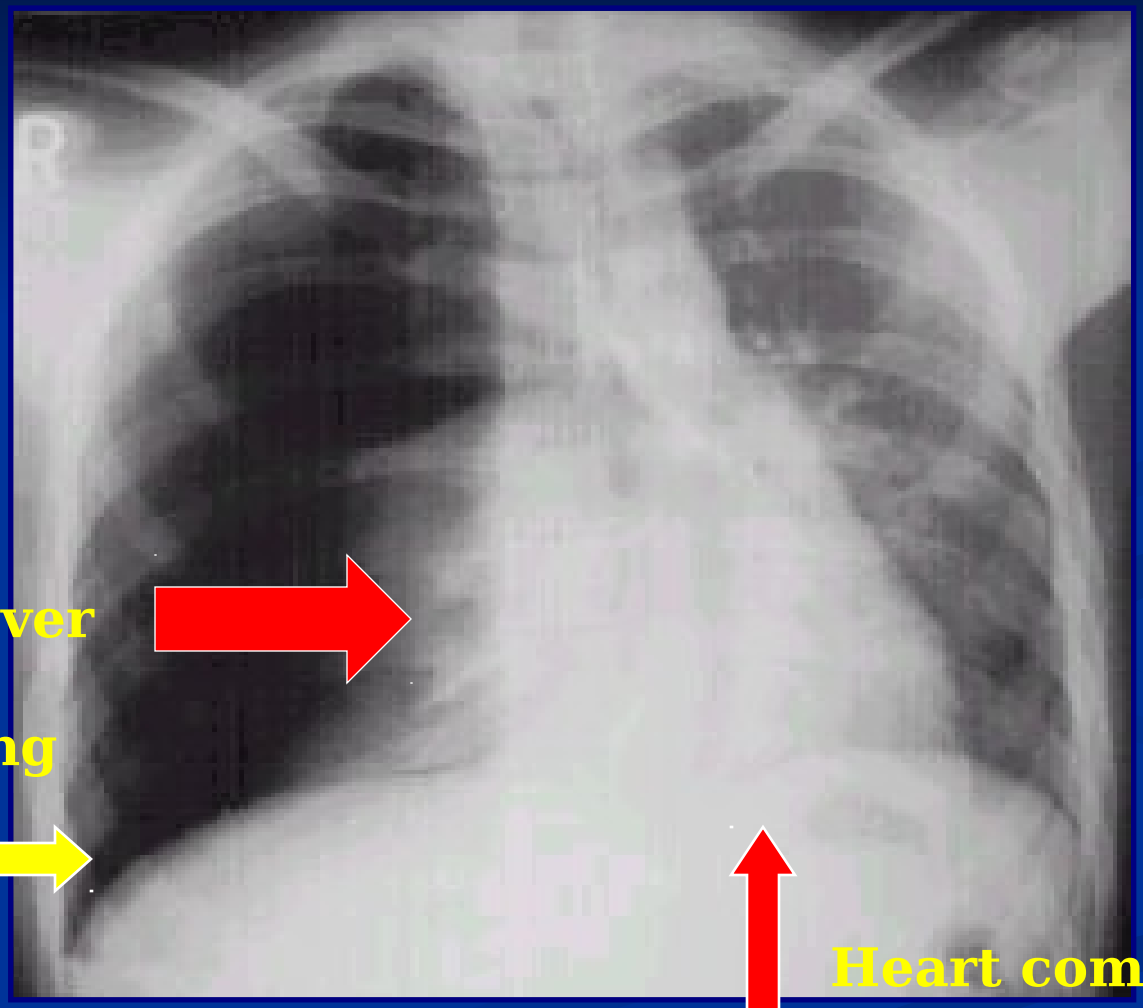
- Anxiety, agitation, and apprehension
- Diminished or absent breath sounds
- Increasing difficulty in breathing with cyanosis (bluish tint around lips, nail beds, inside mouth)
- Rapid shallow breathing
- Abnormally Low Blood Pressure (NO RADIAL PULSE IS PRESENT)

Treating Open and Closed Chest Wounds (Cont'd)

- **Signs and Symptoms of a Tension Pneumothorax (Cont'd)**

- **Distended Neck veins**
- **Cool clammy skin**
- **Decreased Level of Consciousness**
- **Visible deterioration of casualties condition**
- **Tracheal deviation (Shifting of the windpipe to the left or right) [A late sign, and probably will not be observed].**

Treating Open and Closed Chest Wounds (Cont'd)



Air pushes over heart and collapses lung

Air outside lung from wound

Heart compressed not able to pump well

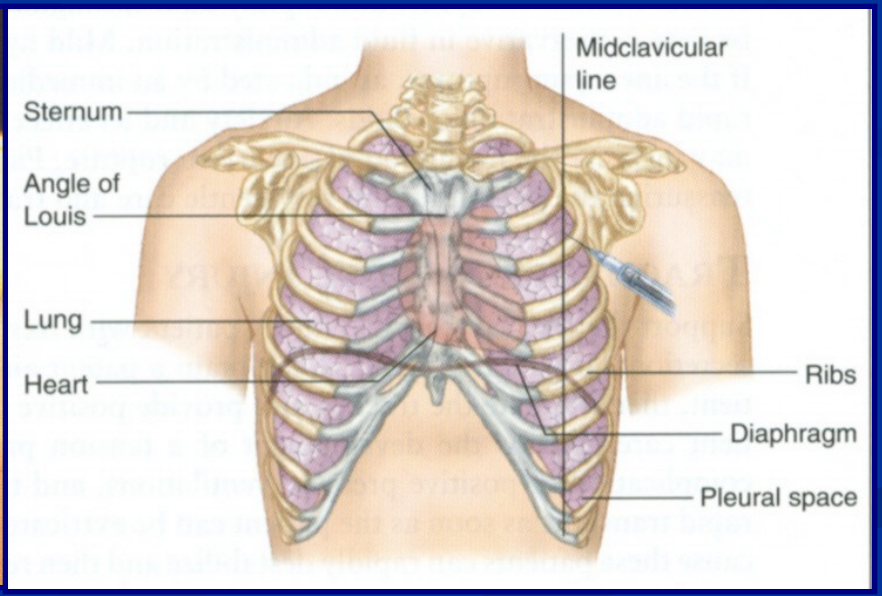
Treating Open and Closed Chest Wounds (Cont'd)

- **Management:**
  - Ensure an open airway
  - Decompress the affected side

- **Indications:**
  - Any chest trauma with progressive respiratory distress.

Treating Open and Closed Chest Wounds (Cont'd)

- **Procedure:**
  - **Identify the second ICS on the anterior chest wall, MCL:**



Needle Chest Decompression

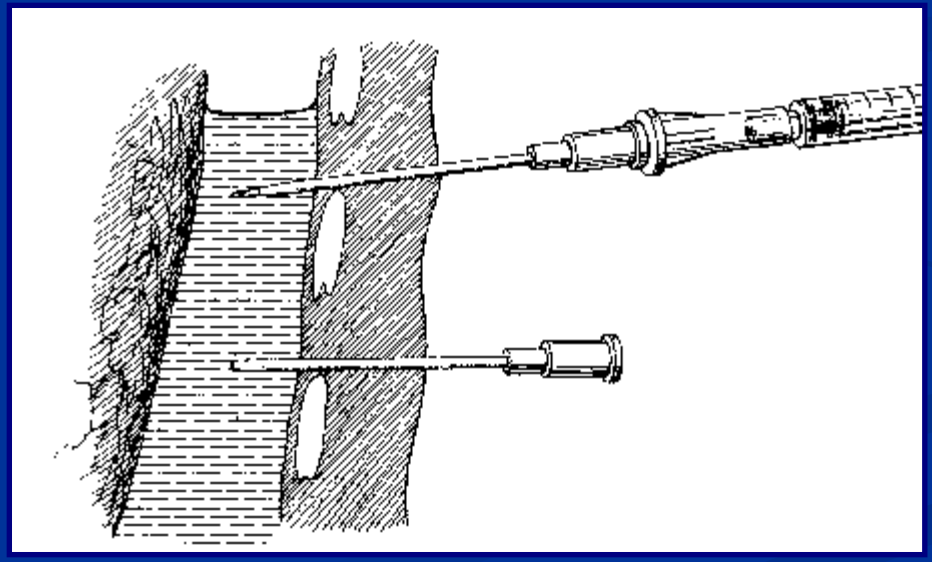
Treating Open and Closed Chest Wounds (Cont'd)

- Insert a 14 ga. Catheter at a 90˚ angle over the top of the 3rd rib, into the 2nd ICS at the MCL.
- Needle must be long enough to enter the chest cavity (3 1/4 – 3 1/2 inches). Per the Army Surgeon Generals guidance.

Treating Open and Closed Chest Wounds (Cont'd)

Treating Open and Closed Chest Wounds (Cont'd)

- If a tension pneumothorax is present, a "hiss of air" may be heard escaping from the chest cavity.
- Remove the needle, leave the catheter in place.



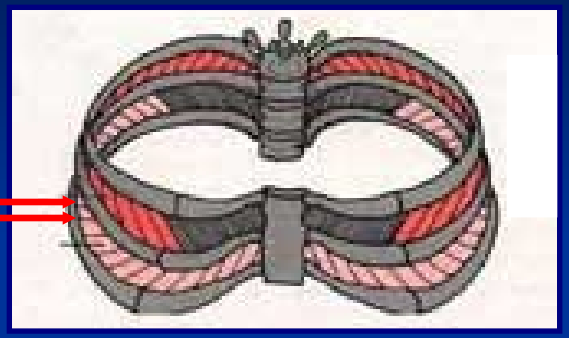
Treating Open and Closed Chest Wounds (Cont'd)

- Tape the catheter hub to the chest wall.
- The casualty's condition should rapidly improve.
- If the catheter is removed accidentally, just re-insert another 14 gauge needle next to the former one.
- Evacuate ASAP
- Make sure Flight [illegible] he has a catheter in his ch[illegible]

Treating Open and Closed Chest Wounds (Cont'd)

- Questions:
  - Why "up and over"and

Never "down and under"



  - What if casualty doesn't have a tension pneumothorax and you perform NCD?
    - May already have hole(s) in chest
    - Probably larger than diameter of 14 ga. needle
    - No additional damage

Treating Open and Closed Chest Wounds (Cont'd)

- Questions:
  - Will lung re-inflate after pressure is released from chest cavity? Example: The Three Kings movie
  - No. To re-inflate the lung you must have a chest tube with suction and or positive pressure ventilation.
  - NCD merely releases the tension and built up pressure which will ultimately suffocate the casualty.

Treating Open and Closed Chest Wounds (Cont'd)

- Complications:
  - Insertion of the needle over the top of the rib prevents laceration of the intercostal vessels or nerve which can cause hemorrhage or nerve damage.
  - "Up and over" NEVER "down and under"

Treating Open and Closed Chest Wounds (Cont'd)

- Injuries to the chest are fewer in nature secondary to modern body armor, however it doesn't protect 100%.

- Wounds to the chest can be rapidly fatal if not identified early and treated appropriately.

Treating Open and Closed Chest Wounds (Cont'd)

- QUESTIONS?
- Demonstration of NDC on a mannequin